Lumens LC200
RS-232/RS-485/TCP-IP
Command List

Revision: 1.1

2020/02/17

History

Version	Issue Date	Description	Apply Firmware
1.0	2019/07/02	LC200 1st release	NA
1.1	2020/02/17	• Fix ：get stream type : type "off" was return "sync"	4.3.0.41

*Notice:

1. The RS-232/RS-485/TCP-IP command list is for LC200.
2. The yellow highlight means the latest update.
3. The blue highlight means the deleted item.

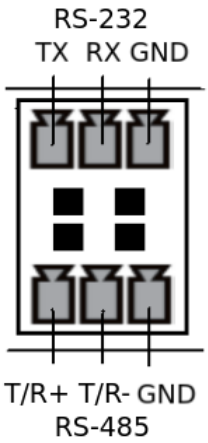
1 Interface

1.1Hardware

- **RS-232 / RS-485**

Connect the RS-232 cable to the RS-232 upper port of the media station.
Connect the RS-485 cable to the RS-485 lower port of the media station.

The pin definition of the RS-232 / RS-485 port：



- **GND：Ground**

RX：Receive Data

TX：Transmit Data

T/R+ : D+
T/R- : D-

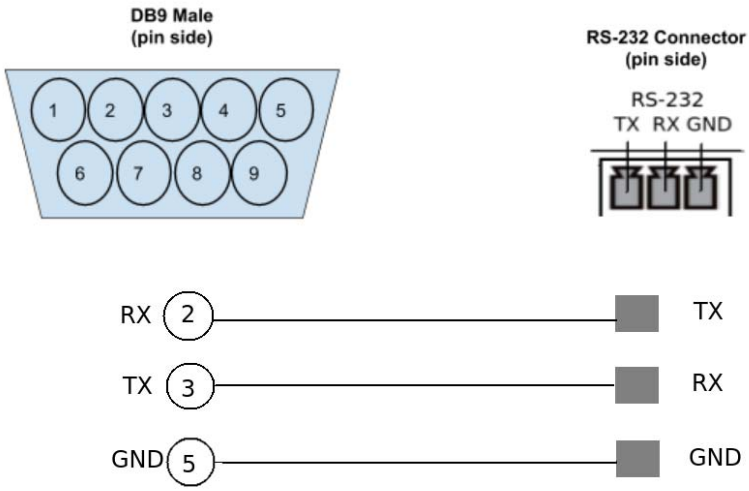
- **TCP**

Connect the CAT-5 (or greater) cable to WAN (or LAN) RJ-45 port of Media Station.

1.2 Connection

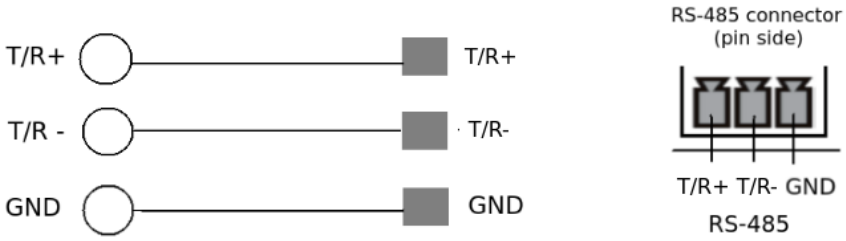
- **RS-232**

Connect the GND, RX, TX pins of the RS-232 port with external control equipment. The media station will be controlled by RS-232 protocol. For example, use the standard 9 pin DB9 serial cable as follows：



- **RS-485**

Connect the GND, T/R+, T/R- pins of the RS-485 port with external control equipment. The media station will be controlled by RS-485 protocol. For example:



- **TCP**

Connect the Media Station's WAN port (or LAN port) and an external control equipment's ethernet port with a CAT-5 (or greater) cable.

1.3 Configuration

- RS-232 / RS-485

  Baud rate ：9600

  Data length：8

  Parity：none

  Stop bit：1

  Flow control：none

- TCP

  IP address : Media Station's WAN IP address
  Port : 5080

2 Control Protocol

2.1 Description

- **RS-232 / RS-485**
  The media station can be controlled from an external controller through a serial RS-232 / RS-485 connection. Control protocol is used for the communication between the media station and controller.
- **TCP**
  When an external controller connects Media Station through networks connection, the Media Station can be controlled by command described in Control Protocol.

2.2 Format

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Byte count	1	1	1	1	1	2	n	1

Header
0x55
Protocol header.
Extended header
0xf0
no checksum in format
Length
Length is a byte counter from **address to Parameters** field.
Example:

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x05	0x01	0x73	0x4c 0x4f	0x01	0x0d

Counter = address 1 byte+action 1 byte+command 2 bytes+parameter 1 byte
Total length = 5 bytes
Address
Identification of device. Range is 0x01 ~ 0xff.(0 is reserved)
*Address is reserved for future use. Don't care
Action
Get: 0x67
"Query" operation for the media station.
Set: 0x73
"Set" operation for the media station.
ACK: 0x06
When the media station receives the protocol data correctly and executes the correspond command successfully. It replaces the action field with ACK in the received protocol format and return to controller.
NAK: 0x15
When the media station receives the protocol data correctly but there is something wrong while the media station executes the correspond command. It replaces the action

field with NAK in the received protocol format and return to controller.
In addition, when the media station receives the invalid protocol data (ie. the protocol data that the media station can't understand), It returns NAK code and End code only.

Command

Two bytes. Please refer to 2.3 Command Set and Parameters for more information.

Parameters

Please refer to 2.3 Command Set and Parameters for more information.
Example:

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x05	0x01	0x73	0x4c 0x4f	0x01	0x0d

End

0x0d

Protocol end code

2.3 Command Set and Parameters

"Set" Action Command List

Command	ASCII	Hex	Description
Power	PW	0x50 0x57	Power control
Record	RC	0x52 0x43	Record
Stop record	SP	0x53 0x50	Stop record
Snapshot	SS	0x53 0x53	Snapshot
Layout	LO	0x4c 0x4f	Layout control
Background	BG	0x42 0x47	Background control
Overlay	OL	0x4f 0x4c	Overlay control
Scene	TE	0x54 0x45	Scene control
Audio Volume	AV	0x41 0x56	Audio volume control
Audio Mute	AM	0x41 0x4d	Audio mute control
Audio Type	AT	0x41 0x54	Audio type control
Stream	SC	0x53 0x43	Stream control
Camera Preset	CP	0x43 0x50	Camera go to preset
Camera Move	CM	0x43 0x4d	Camera pan/tilt move
Camera Zoom	CZ	0x43 0x5a	Camera zoom control

- **Power**

	ASCII	Hex	Description
Command code	PW	0x50 0x57	
Parameter 1	0 1	0x30 0x31	Power off Power on(NOT supported. Hardware limitation)

- **Record**

	ASCII	Hex	Description
Command code	RC	0x52 0x43	Start record process
Parameter			

- **Stop**

	ASCII	Hex	Description
Command code	SP	0x53 0x50	Stop record process
Parameter			

- **Snapshot**

	ASCII	Hex	Description
Command code	SS	0x53 0x53	Insert snapshot
Parameter			

- **Layout**

	ASCII	Hex	Description
Command code	LO	0x4c 0x4f	Set layout ID
Parameter 1		0x01~0x12	Layout ID

- **Background**

	ASCII	Hex	Description
Command code	BG	0x42 0x47	Set background ID
Parameter 1		0x00~0x09	Background ID 0x00: Background off

- **Overlay**

	ASCII	Hex	Description
Command code	OL	0x4f 0x4c	Set overlay ID
Parameter 1		0x00~0x09	Overlay ID 0x00: Overlay off

- **Scenes**

	ASCII	Hex	Description
Command code	TE	0x54 0x45	Set scene ID
Parameter 1		0x01~0x09	Scene ID

- **Audio Volume**

	ASCII	Hex	Description
Command code	AV	0x41 0x56	Set audio volume
Parameter 1	I O	0x49 0x4f	Set input volume Set output volume
Parameter 2	1 2 3 4	0x31 0x32 0x33 0x34	Input: Audio input 1; Output: Audio output 1 Input: Audio input 2; Output: None Input: Audio input 3; Output: None input: Audio input 4; Output: None
Parameter 3		0x00~0x7d	Audio volume(0~125)

- **Audio Mute**

	ASCII	Hex	Description
Command code	AM	0x41 0x4d	Set audio mute/unmute
Parameter 1	I O	0x49 0x4f	Set input mute/unmute Set output mute/unmute
Parameter 2	1 2 3 4	0x31 0x32 0x33 0x34	Input: Audio input 1; Output: Audio output 1 Input: Audio input 2; Output: None Input: Audio input 3; Output: None input: Audio input 4; Output: None
Parameter 3	0 1	0x30 0x31	Audio unmute Audio mute

- **Audio Type**

	ASCII	Hex	Description
Command code	AT	0x41 0x54	Set audio input type
Parameter 1	I O	0x49 0x4f	Set audio input type Set audio output type
Parameter 2	1 2 3 4	0x31 0x32 0x33 0x34	Input: Audio input 1; Output: Audio output 1 Input: Audio input 2; Output: None Input: Audio input 3; Output: None input: Audio input 4; Output: None
Parameter 3	1 2 3	0x31 0x32 0x33	Input:Line in Output:ALL Input:Mic in Output:Line out + PGM Input:HDMI in Output:MultiView

- **Stream**

	ASCII	Hex	Description
Command code	SC	0x53 0x43	Set stream ready/streaming
Parameter 1	1 2 3	0x31 0x32 0x33	Stream 1 Stream 2 Stream 3
Parameter 2		0x01 0x02	Ready Streaming

- **Camera Preset**

	ASCII	Hex	Description
Command code	CP	0x43 0x50	Set camera of channel goto preset
Parameter 1	1 2 3 4	0x31 0x32 0x33 0x34	Channel 1 Channel 2 Channel 3 Channel 4
Parameter 2		0x01~0x09	Preset ID

- **Camera Move**

	ASCII	Hex	Description
Command code	CM	0x43 0x4d	Set camera move
Parameter 1	S U D L	0x53 0x55 0x44 0x4c	Camera stop move Camera move up Camera move down Camera move left

	R	0x52	Camera move right
Parameter 2	1 2 3 4	0x31 0x32 0x33 0x34	Channel 1 Channel 2 Channel 3 Channel 4
Parameter 3		0x01~0x18	Move speed , this parameter in stop command is dispensable

- **Camera Zoom**

	ASCII	Hex	Description
Command code	CZ	0x43 0x5a	Set camera zoom
Parameter 1	S I O	0x53 0x49 0x4f	Camera stop zoom Camera zoom in Camera zoom out
Parameter 2	1 2 3 4	0x31 0x32 0x33 0x34	Channel 1 Channel 2 Channel 3 Channel 4
Parameter 3		0x01~0x07	Zoom speed , this parameter in stop command is dispensable

Example :

1. Record start

Controller send to Media station

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x04	0x01	0x73	0x52 0x43		0x0d

Media station response to Controller

Success:

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x04	0x01	0x06	0x52 0x43		0x0d

Failed:

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x04	0x01	0x15	0x52 0x43		0x0d

2. Set layout ID 1

Controller send to Media station

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x05	0x01	0x73	0x4c 0x4f	0x01	0x0d

Media station response to Controller

Success:

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x05	0x01	0x06	0x4c 0x4f	0x01	0x0d

Failed:

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x05	0x01	0x15	0x4c 0x4f	0x01	0x0d

“Get” Action Command List

Command	ASCII	Hex	Description
State	ST	0x53 0x54	System state
Layout	LO	0x4c 0x4f	Layout control
Background	BG	0x42 0x47	Background control
Overlay	OL	0x4f 0x4c	Overlay control
Audio Volume	AV	0x41 0x56	Audio volume control
Audio Mute	AM	0x41 0x4d	Audio mute control
Audio Type	AT	0x41 0x54	Audio type control
Stream	SC	0x53 0x43	Stream type

- **State**

	ASCII	Hex	Description
Command code	ST	0x53 0x54	Get system state
Response Parameter 1	0 1 2 3 4 5	0x30 0x31 0x32 0x33 0x34 0x35	Uninitialize Ready Stopped Recording Paused Waiting

- **Layout**

	ASCII	Hex	Description
Command code	LO	0x4c 0x4f	Get layout ID
Response Parameter 1		0x01~0x12	Layout ID

- **Background**

	ASCII	Hex	Description
Command code	BG	0x42 0x47	Get background ID
Response Parameter 1		0x00~0x09	Background ID 0x00: Background off

- **Overlay**

	ASCII	Hex	Description
Command code	OL	0x4f 0x4c	Get overlay ID
Response Parameter 1		0x00~0x09	Overlay ID 0x00: Overlay off

- **Audio Volume**

	ASCII	Hex	Description
Command code	AV	0x41 0x56	Get audio volume
Command/Response Parameter 1	I O	0x49 0x4f	Get input volume Get output volume
Command/Response Parameter 2	1 2 3 4	0x31 0x32 0x33 0x34	Input: Audio input 1; Output: Audio output 1 Input: Audio input 2; Output: None Input: Audio input 3; Output: None input: Audio input 4; Output: None
Response Parameter 3		0x00~0x7d	Audio volume(0~125)

- **Audio Mute**

	ASCII	Hex	Description
Command code	AM	0x41 0x4d	Get audio mute/unmute
Command/Response Parameter 1	I O	0x49 0x4f	Get input mute/unmute Get output mute/unmute
Command/Response Parameter 2	1 2 3 4	0x31 0x32 0x33 0x34	Input: Audio input 1; Output: Audio output 1 Input: Audio input 2; Output: None Input: Audio input 3; Output: None input: Audio input 4; Output: None
Response Parameter 3	0 1	0x30 0x31	Audio unmute Audio mute

- **Audio Type**

	ASCII	Hex	Description
Command code	AT	0x41 0x54	Get audio input type
Parameter 1	I O	0x49 0x4f	Set audio input type Set audio output type

Command/Response Parameter 2	1 2 3 4	0x31 0x32 0x33 0x34	Input: Audio input 1; Output: Audio output 1 Input: Audio input 2; Output: None Input: Audio input 3; Output: None input: Audio input 4; Output: None
Response Parameter 3	1 2 3	0x31 0x32 0x33	Input:Line in Output:ALL Input:Mic in Output:Line out + PGM Input:HDMI in Output:MultiView

- **Stream**

	ASCII	Hex	Description
Command code	SC	0x53 0x43	Get Stream type
Parameter	1 2 3	0x31 0x32 0x33	Stream 1 Stream 2 Stream 3
Response Parameter 2		0x00 0x01 0x02	Sync Ready Streaming

Example :

1. Get system state of media station

Controller send to Media station

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x04	0x01	0x67	0x53 0x54		0x0d

Media station response to Controller
Success: system state is Ready

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x05	0x01	0x06	0x53 0x54	0x31	0x0d

Failed:

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x04	0x01	0x15	0x53 0x54		0x0d

2. Get layout ID of media station

Controller send to Media station

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x04	0x01	0x67	0x4c 0x4f		0x0d

Media station response to Controller

Success: ID is 1

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x05	0x01	0x05	0x4c 0x4f	0x01	0x0d

Failed:

Name	Header	Extended Header	Length	Address	Action	Command	Parameters	End
Hex	0x55	0xf0	0x04	0x01	0x15	0x4c 0x4f		0x0d

3 Event Notification

3.1 Description

The event message sent to an external controller from media station for notifying system state change such as entering recording state while recording. The system state is defined same as the “State” command in Get Action Command List. Please refer to 4.3 Event Code and Parameters for more information.

3.2 Format

Name	Header	Event Code	Parameters	End
Byte count	1	2	n	1

Header

0x23 (ASCII code: #)

Protocol header.

Event Code

Two bytes event code. Please refer to 4.3 Event Code and Parameters for more information.

Parameters

Please refer to 4.3 Event Code and Parameters for more information.

End

0x0d

End code of event.

3.3 Event Code and Parameters

- **State**

	ASCII	Hex	Description
Event code	ST	0x53 0x54	System event
Event Parameter 1	0 1 2 3 4 5	0x30 0x31 0x32 0x33 0x34 0x35	Uninitialize Ready Stopped Recording Paused Waiting

4 Note

1. Commands are not accepted during media station boot-up.